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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/550,580	09/23/2005	Martin F. Bachmann	1700.0610001/BJD	8355

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EXAMINER
KINSEY WHITE, NICOLE ERIN

ART UNIT	PAPER NUMBER
1648	

MAIL DATE	DELIVERY MODE
01/28/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/550,580	BACHMANN ET AL.	
	Examiner	Art Unit	
	NICOLE KINSEY WHITE	1648	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 October 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *See Continuation Sheet* is/are pending in the application.

4a) Of the above claim(s) *4,6,7,9-11,113,127,129,155,156 and 158* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *See Continuation Sheet* is/are rejected.

7)☒ Claim(s) *19,119 and 167* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/7/2009*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Disposition of Claims: Claims pending in the application are 1,2,4,6-12,14,15,17,19,24,25,35,48,113,115,118,119,122,123,125,127,129-131,133-136,139,144-158 and 161-167.

Continuation of Disposition of Claims: Claims rejected are 1,2,8,12,14,15,17,19,24,25,35,48,115,118,119,122,123,125,130,131,133-136,139,144-154,157 and 161-166.

DETAILED ACTION

Defective Declaration

On October 11, 2007 applicants filed two Declarations under 37 C.F.R. § 1.132 to overcome two different rejections under 35 U.S.C. §102(e). Upon further consideration, the Declarations have been found to be defective for the following reasons:

Claims 1, 2, 8, 12, 14, 15, 17, 21, 24, 25, 27, 30, 33, 35, 42, 48, 97 and 111 were rejected under 35 U.S.C §102(e) as being anticipated by Bachmann et al. (2003/0099668). According to the Declaration submitted by applicants, Bachmann, Tisso and Meijerink invented the claimed subject matter.

Claims 1, 2, 8, 21, 24, 25, 27, 30, 33, 35, 42, 48, 97 and 111 were rejected under 35 U.S.C §102(e) as being anticipated by Bachmann et al. (2004/0005338), and according to the Declaration submitted by applicants, Bachmann alone invented the claimed subject matter.

However, the two rejections have claims 1, 2, 8, 21, 24, 25, 27, 30, 33, 35, 42, 48, 97 and 111 in common. Thus, it is not clear how the common claims can have two different inventive entities.

In addition, neither Declaration states the role of the inventors who did not sign the Declaration.

Accordingly, the rejections under 35 U.S.C. §102(e) have been reinstated.

Claim Objections

Claims 19, 119 and 135 are objected to because of the following informalities: The claims should recite "selected from the group consisting of." Claim 135 depends from a rejected claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 8, 12, 14, 15, 17, 24, 25, 35, 48, 115, 118, 122, 123, 125, 130, 131, 133, 134, 136, 139, 144-154, 157, and 161-166 are rejected under 35 U.S.C. § 102(e) as being anticipated by Bachmann et al. (U.S. Application No. 2003/0099668, filed September 16, 2002, with priority to September 14, 2001 and April 22, 2002).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in

the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

The claims are drawn to a composition comprising: a virus-like particle wherein said virus-like particle is a virus-like particle of an RNA bacteriophage;

at least one immunostimulatory substance; and

at least one antigen or antigenic determinant;

wherein said at least one antigen or antigenic determinant is bound to said virus-like particle, and wherein said immunostimulatory substance is packaged into said virus-like particle, and wherein said immunostimulatory substance is unmethylated CpG-containing oligonucleotide, and wherein said antigen comprises at least one HIV polypeptide.

Bachmann et al. discloses compositions comprising a virus-like particle, with immunostimulatory CpG oligonucleotides packaged in the virus-like particles and with antigens bound to the virus-like particles (see abstract and summary).

The antigen can be attached to the virus-like particle by covalent bonds (e.g., ester, ether, phosphoester, amide, peptide, imide, carbon-sulfur bonds, carbon-phosphorus bonds by chemically coupling) or non-covalent bonds (see paragraph [0120]). The antigen can be from infectious viruses such as HIV (e.g., HIV gp140 and gp160) (see paragraphs [0110], [0307] and [0335]), and the antigens can be a T-cell epitope or a combination of at least two epitopes, wherein the at least two epitopes are linked directly or by way of a linking sequence (see paragraph [0336]). The antigen can be bound to the VLP via a cross-linker containing a functional group which can react

with a first attachment site (i.e., the side-chain amino group of lysine residues of the VLP or at least one VLP subunit) and a further functional group which can react with a second attachment site (i.e., a sulfhydryl group of a cysteine residue fused to the antigen or antigenic determinant) (see paragraph [270]). The VLPs are preferably made from the RNA phage Qβ (see paragraphs [0152] and [0162]-[0170]) or AP205 (see paragraphs [0177]-[0189]) or instant SEQ ID NO: 10 (see SEQ ID: 10 of Bachmann et al. '668). The packaged CpG oligonucleotide is unmethylated and may comprise a palindromic sequence (see paragraph [0130]). The specific CpG oligonucleotide of SEQ ID NO:41 comprising the palindromic sequence of SEQ ID NO:1 is disclosed in Table I of Example 11. Bachmann et al. also discloses a vaccine composition comprising the VLPs as described above in a pharmaceutically acceptable diluent, carrier or excipient. The vaccine can also optionally comprise an adjuvant (see paragraph [0341]).

Claims 1, 2, 8, 12, 21, 24, 25, 35, 48, 115, 122, 125, 130, 131, 133, 136, 139, 147-149, 162, 163, 165, and 166 are rejected under 35 U.S.C. § 102(e) as being anticipated by Bachmann et al. (U.S. Application No. 2004/0005338, filed June 20, 2003, with priority to June 20, 2002).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in

the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

The claims are drawn to a composition comprising: a virus-like particle wherein said virus-like particle is a virus-like particle of an RNA bacteriophage;

at least one immunostimulatory substance; and

at least one antigen or antigenic determinant;

wherein said at least one antigen or antigenic determinant is bound to said virus-like particle, and wherein said immunostimulatory substance is packaged into said virus-like particle, and wherein said immunostimulatory substance is unmethylated CpG-containing oligonucleotide, and wherein said antigen comprises at least one HIV polypeptide.

Bachmann et al. discloses compositions comprising a virus-like particle, with immunostimulatory CpG oligonucleotides packaged in the virus-like particles and with antigens bound to the virus-like particles (see abstract and summary).

The antigen can be attached to the virus-like particle by covalent bonds (e.g., ester, ether, phosphoester, amide, peptide, imide, carbon-sulfur bonds, carbon-phosphorus bonds by chemically coupling) or non-covalent bonds (see paragraph [0081]). Also, the antigen can be bound to the VLP through a first attachment site on the VLP and a second attachment site on the antigen selected from the group consisting of (a) an attachment site not naturally occurring with said antigen or antigenic determinant; and (b) an attachment site naturally occurring with said antigen or antigenic determinant (see, for example, claim 41 of Bachmann et al.). The antigen can

be from infectious viruses such as HIV (e.g., gp140 and gp160) (see paragraphs [0218], [0219] and [0260]), and the antigens can be a T-cell epitope or a combination of at least two epitopes, wherein the at least two epitopes are linked directly or by way of a linking sequence (see paragraph [0261]). The VLPs are preferably made from the RNA phage Qβ (see paragraphs [0108] and [0118]-[0128]) or AP205 (see paragraphs [0138]-[0148]) or instant SEQ ID NO: 10 (see SEQ ID: 1 of Bachmann et al. '338). The packaged CpG oligonucleotide is unmethylated and may comprise a palindromic sequence (see paragraph [0091]). The specific CpG oligonucleotide of SEQ ID NO:41 comprising the palindromic sequence of SEQ ID NO:1 is disclosed in Table I of Example 18. Bachmann et al. also discloses a vaccine composition comprising the VLPs as described above in a pharmaceutically acceptable diluent, carrier or excipient. The vaccine can also optionally comprise an adjuvant (see paragraph [0265]).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 2, 8, 12, 14, 15, 17, 21, 24, 25, 35, 48, 115, 118, 120, 122-126, 130, 131, 133-136, 139, 144-154, 157 and 159-161 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kozlovska et al. (Intervirology, 1996, 39:9-15), Krieg et al. (U.S. Patent Application No. 2003/0050263), Stoll et al. (The Journal of Biological Chemistry, 1977, 252(3):990-993), Bachmann et al. (U.S. Patent Application No. 2003/0099668) and Carson et al. (WO 97/28259).

The claims are directed to a composition comprising:

(a) a virus-like particle;

(b) at least one immunostimulatory substance; and

(c) at least one antigen or antigenic determinant;

wherein said at least one antigen or antigenic determinant is bound to said virus-like particle, and wherein said immunostimulatory substance is packaged into said virus-like particle, and wherein said immunostimulatory substance is an unmethylated CpG-containing oligonucleotide, and wherein said unmethylated CpG-containing oligonucleotide comprises a palindromic sequence, and wherein said palindromic sequence comprises GACGATCGTC (SEQ ID NO: 1), and wherein said antigen comprises at least one HIV polypeptide.

Kozlovska et al. teaches a virus-like particle composed of RNA bacteriophage Qβ capsid proteins fused to HBV preS1 and HIV-1 gp120 V3 epitopes. The capsid proteins and antigens associate through peptide bonds.

Kozlovska et al. does not teach packaging immunostimulatory substances into the Qβ virus-like particles nor SEQ ID NO:10, SEQ ID NO:1 or SEQ ID NO:41. However, Stoll et al. discloses the sequence of the Qβ coat protein (instant SEQ ID NO:10) and Krieg et al. teaches the administration of unmethylated CpG nucleic acids to stimulate and enhance an immune response in a subject to treat HIV. In addition, Krieg et al. teaches that the CpG nucleic acids can be administered using any delivery vehicle known in the art, including virus-like particles (see paragraph [0129]). The CpG nucleic acids of Krieg et al. can contain a palindrome (see paragraph [0025]). Carson et al. discloses recombinant vectors containing immunostimulatory palindromic polynucleotides that are useful for selectively enhancing the TH1 immune response. Carson et al. also discloses instant SEQ ID NO:1 (see pages 61-62 and SEQ ID NO:13 on page 67). Bachmann et al. discloses immunostimulatory nucleic acids such as SEQ ID NO:41 (see Table 1).

Therefore, it would have been obvious to one of ordinary skill in the art to use SEQ ID NO:10 in the virus-like particles of Kozlovska et al. and to modify the virus-like particles of Kozlovska et al. in order to package known immunostimulatory CpG nucleic acids such as those taught by Carson et al. and Bachmann et al. One would have been motivated to do so given the disclosure of SEQ ID NO:10 by Stoll et al., given the suggestion by Krieg et al. that CpG nucleic acids can be delivered in virus-like particles

and that the immunostimulatory CpG nucleic acids can be used to treat HIV, and given the teachings of Carson et al. that instant SEQ ID NO:1 can be used to enhance immune responses. One of ordinary skill in the art would have had a reasonable expectation of success as both components have been used successfully in the art to stimulate and enhance immune responses to antigens and given the fact that viral vectors and virus-like particles (e.g., adenoviral vectors) have been used to deliver nucleic acid and protein antigens.

Further, the courts have said: "It is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose . . . . [T]he idea of combining them flows logically from their having been individually taught in the prior art." In re Kerkhoven, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980) (citations omitted) (Claims to a process of preparing a spray-dried detergent by mixing together two conventional spray-dried detergents were held to be prima facie obvious.). In this case, applicants are combining two components, virus-like particles carrying antigens and immunostimulatory CpG nucleic acids, which are known in the art to enhance or stimulate an immune response.

With regard to the type of antigen (e.g., cytotoxic epitopes), the number of antigens displayed and the bond types used to join the capsid proteins and the antigen, it is well within the purview of one of ordinary skill in the art to pick and choose the number of antigens to display on the virus-like particle and the method of joining the

antigen(s) to the capsid proteins (e.g., peptide bonds, nonpeptide bonds, other covalent bonds, linkers, etc.).

Therefore, the invention as a whole is prima facie obvious to one of ordinary skill in the art at the time the invention was made.

Response to Arguments

In the reply dated October 7, 2009, applicants argue that the Office has not satisfied the burden for establishing a prima facie case of obviousness. In particular, applicants argue that Krieg et al. does not teach using virus-like particles to deliver an immunostimulatory substance and that Krieg et al. merely lists different delivery vehicles. Applicants' argument has been fully considered, but not found persuasive.

As stated above, Kozlovska et al. teaches a virus-like particle composed of RNA bacteriophage Qβ capsid proteins fused to HIV-1 gp120 V3 epitopes to deliver foreign epitopes, and Krieg et al. teaches the administration of unmethylated CpG nucleic acids to stimulate and enhance an immune response in a subject to treat HIV. At paragraph [0129], Krieg et al. states the CpG nucleic acid and the anti-HIV therapy may be administered alone (e.g. in saline or buffer) or using any delivery vectors known in the art. For instance the following delivery vehicles have been described: virus-like particles (Jiang et al., 1999, Leibl et al., 1998). It is noted that CpG nucleic acids are immunostimulatory substances. Jiang et al. and Leibl et al. both establish that virus-like particles are known in the art; however, Krieg et al. recognizes and suggests the use of the virus-like particles to deliver CpG. The motivation to combine CpG with (or within) the virus-like particles of Kozlovska et al. comes from the teachings of Krieg et al. that

CpG nucleic acids enhance immune responses. Therefore, it would be obvious for one of ordinary skill in the vaccine arts to want to enhance an immune response to HIV or any other antigen/vaccine by administering CpG nucleic acids as taught by Krieg et al.

Krieg et al. also teaches that the CpG nucleic acids can contain a palindrome (see paragraph [0025]). Carson et al. also discloses recombinant vectors containing immunostimulatory palindromic polynucleotides that are useful for selectively enhancing the TH1 immune response. Therefore, it would be obvious for one of ordinary skill in the art to further include CpG nucleic acids with palindrome sequences. The motivation comes in the teaching of Krieg et al. (ODN which contain certain palindrome sequences can activate NK cells (paragraph [0008]) and the most stimulatory sequence identified was TCAACGTT which contains the self complementary "palindrome" AACGTT (paragraph [0085])) and Carson et al. (recombinant vectors containing immunostimulatory palindromic polynucleotides that are useful for selectively enhancing the TH1 immune response).

Applicants' argument that Bachmann et al. is not proper prior art has already been addressed.

Claims 1, 2, 8, 12, 14, 15, 17, 21, 24, 25, 35, 48, 115, 118, 120, 122-126, 130, 131, 133-136, 139, 144-154, 157 and 159-161 are rejected under 35 U.S.C. 103(a) as being unpatentable over Renner et al. (WO 02/056905) and Krieg et al. (U.S. Patent Application No. 2003/0050263), Bachmann et al. (U.S. Patent Application No. 2003/0099668) and Carson et al. (WO 97/28259).

Renner et al. teaches a virus-like particle composed of RNA bacteriophage capsid proteins, e.g., Qβ, fused to various antigens including HIV-1 epitopes. The capsid proteins, e.g., instant SEQ ID NO:10, and antigens associate through peptide bonds.

Renner et al. does not teach packaging immunostimulatory substances into the Qβ virus-like particles nor SEQ ID NO:1 or SEQ ID NO:41. However, Krieg et al. teaches the administration of unmethylated CpG nucleic acids to stimulate and enhance an immune response in a subject to treat HIV. In addition, Krieg et al. teaches that the CpG nucleic acids can be administered using any delivery vehicle known in the art, including virus-like particles (see paragraph [0129]). The CpG nucleic acids of Krieg et al. can contain a palindrome (see paragraph [0025]). Carson et al. discloses recombinant vectors containing immunostimulatory palindromic polynucleotides that are useful for selectively enhancing the TH1 immune response. Carson et al. also discloses instant SEQ ID NO:1 (see pages 61-61 and SEQ ID NO:13 on page 67). Bachmann et al. discloses immunostimulatory nucleic acids such as SEQ ID NO:41 (see Table 1).

Therefore, it would have been obvious to one of ordinary skill in the art to modify the virus-like particles of Renner et al. in order to package known immunostimulatory CpG nucleic acids such as those taught by Carson et al. and Bachmann et al. One would have been motivated to do so given the suggestion by Krieg et al. that CpG nucleic acid can be delivered in virus-like particles and that the immunostimulatory CpG nucleic acids can be used to treat HIV and given the teachings of Carson et al. that instant SEQ ID NO:1 can be used to enhance immune responses. One of ordinary skill

in the art would have had a reasonable expectation of success as both components have been used successfully in the art to stimulate and enhance immune responses to antigens and given the fact that viral vectors and virus-like particles (e.g., adenoviral vectors) have been used to deliver nucleic acid and protein antigens.

Further, the courts have said: "It is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose . . . . [T]he idea of combining them flows logically from their having been individually taught in the prior art." In re Kerkhoven, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980) (citations omitted) (Claims to a process of preparing a spray-dried detergent by mixing together two conventional spray-dried detergents were held to be prima facie obvious.). In this case, applicants are combining two components, virus-like particles carrying antigens and immunostimulatory CpG nucleic acids, which are known in the art to enhance or stimulate an immune response.

With regard to the type of antigen (e.g., cytotoxic epitopes), the number of antigens displayed and the bond types used to join the capsid proteins and the antigen, it is well within the purview of one of ordinary skill in the art to pick and choose the number of antigens to display on the virus-like particle and the method of joining the antigen(s) to the capsid proteins (e.g., peptide bonds, nonpeptide bonds, other covalent bonds, linkers, etc.).

Therefore, the invention as a whole is prima facie obvious to one of ordinary skill in the art at the time the invention was made.

Response to Arguments

In the reply dated October 7, 2009, applicants argue that the Office has not satisfied the burden for establishing a prima facie case of obviousness. In particular, applicants argue that the cited references do not teach the claimed invention. All of applicants' arguments have been fully considered, and have been addressed above.

Claims 1, 2, 8, 12, 14, 15, 17, 21, 24, 25, 35, 48, 115, 118, 120, 122-126, 130, 131, 133-136, 139, 144-154, 157 and 159-161 are rejected under 35 U.S.C. 103(a) as being unpatentable over Renner et al. (WO 02/056907) and Krieg et al. (U.S. Patent Application No. 2003/0050263), Bachmann et al. (U.S. Patent Application No. 2003/0099668) and Carson et al. (WO 97/28259).

Renner et al. teaches a virus-like particle composed of RNA bacteriophage capsid proteins, e.g., Qβ, fused to various antigens including HIV-1 epitopes. The capsid proteins, e.g., instant SEQ ID NO:10, and antigens associate through peptide bonds.

Renner et al. does not teach packaging immunostimulatory substances into the Qβ virus-like particles nor SEQ ID NO:1 or SEQ ID NO:41. However, Krieg et al. teaches the administration of unmethylated CpG nucleic acids to stimulate and enhance an immune response in a subject to treat HIV. In addition, Krieg et al. teaches that the CpG nucleic acids can be administered using any delivery vehicle known in the art, including virus-like particles (see paragraph [0129]). The CpG nucleic acids of Krieg et

al. can contain a palindrome (see paragraph [0025]). Carson et al. discloses recombinant vectors containing immunostimulatory palindromic polynucleotides that are useful for selectively enhancing the TH1 immune response. Carson et al. also discloses instant SEQ ID NO:1 (see pages 61-61 and SEQ ID NO:13 on page 67). Bachmann et al. discloses immunostimulatory nucleic acids such as SEQ ID NO:41 (see Table 1).

Therefore, it would have been obvious to one of ordinary skill in the art to modify the virus-like particles of Renner et al. in order to package known immunostimulatory CpG nucleic acids such as those taught by Carson et al. and Bachmann et al. One would have been motivated to do so given the suggestion by Krieg et al. that CpG nucleic acid can be delivered in virus-like particles and that the immunostimulatory CpG nucleic acids can be used to treat HIV and given the teachings of Carson et al. that instant SEQ ID NO:1 can be used to enhance immune responses. One of ordinary skill in the art would have had a reasonable expectation of success as both components have been used successfully in the art to stimulate and enhance immune responses to antigens and given the fact that viral vectors and virus-like particles (e.g., adenoviral vectors) have been used to deliver nucleic acid and protein antigens.

Further, the courts have said: "It is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose . . . . [T]he idea of combining them flows logically from their having been individually taught in the prior art." In re Kerkhoven, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980) (citations omitted) (Claims to a process of preparing a spray-dried detergent by mixing

together two conventional spray-dried detergents were held to be prima facie obvious.). In this case, applicants are combining two components, virus-like particles carrying antigens and immunostimulatory CpG nucleic acids, which are known in the art to enhance or stimulate an immune response.

With regard to the type of antigen (e.g., cytotoxic epitopes), the number of antigens displayed and the bond types used to join the capsid proteins and the antigen, it is well within the purview of one of ordinary skill in the art to pick and choose the number of antigens to display on the virus-like particle and the method of joining the antigen(s) to the capsid proteins (e.g., peptide bonds, nonpeptide bonds, other covalent bonds, linkers, etc.).

Therefore, the invention as a whole is prima facie obvious to one of ordinary skill in the art at the time the invention was made.

Response to Arguments

In the reply dated October 7, 2009, applicants argue that the Office has not satisfied the burden for establishing a prima facie case of obviousness. In particular, applicants argue that the cited references do not teach the claimed invention. All of applicants' arguments have been fully considered, and have been addressed above.

Double Patenting

Claims 1, 2, 8, 24, 25, 35, 48, 115, 122, 162 and 163 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 10, 14-16, 41, 48 and 55 of copending application 10/563,944. Although

the conflicting claims are not identical, they are not patentably distinct from each other because they relate to the same inventive concept. The instant composition claims are obvious over the claims of the copending application because the claims of the copending application have all of the characteristics of the instant composition claims.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

The elected species SEQ ID Nos: 71, 72 and 85 are allowable. Claim 167 is objected to as being dependent upon a rejected base claim, but would be allowable, as they read on the elected species, if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NICOLE KINSEY WHITE whose telephone number is (571)272-9943. The examiner can normally be reached on Monday through Friday from 9:00 am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Mondesi can be reached on (571) 272-0956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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